

## ELECTRICAL CONNECTOR LOCKING LEVER

### CROSS-REFERENCE TO RELATED APPLICATIONS

5 This application is based on French Patent Application No. 03.02994 filed 3 November, 2003, the disclosure of which is hereby incorporated by reference thereto in its entirety, and the priority of which is hereby claimed under 35 U.S.C. §119.

### BACKGROUND OF THE INVENTION

#### Field of the invention

10 The present invention relates to an electrical connector locking lever.

#### Description of the prior art

15 The invention relates to connectors comprising a female housing member and a male housing member, one of the two members having the flanges of a locking lever articulated to two opposite walls and the other having studs on the corresponding walls adapted to cooperate with cams on the flanges.

20 Connectors of the above kind have the advantage of allowing effortless insertion of male electrical contact tongues of one of the housing members into female electrical contact members of the other housing member when there is a large number of contacts.

25 When making the electrical connection on a vehicle, operatives have to lock a large number of connectors, this involving each time pivoting the lever from a rest position, in which the male housing member can be inserted into the female housing member, to a locking position. A repetitive operation of this kind is tiring and in the long term can lead to irritation of the  
30 fingers or even injuries.

— One object of the present invention is to remedy this drawback.

### SUMMARY OF THE INVENTION

35 The invention consists in a locking lever for a

connector of the type comprising a female housing member and a male housing member, one of the two members having studs on two opposite walls while the other member has a locking lever that is U-shaped with two flanges and a holding strip articulated on two corresponding walls, each of the flanges having a cam adapted to cooperate with a corresponding stud, the lever being adapted to occupy a rest position in which the cams are moved away from the studs to allow insertion of the male member into the female member and, after pivoting the lever, a locking position in which the studs cooperate with the cams, the housing member to which the lever is articulated having an abutment against which an edge of the holding strip bears, while the opposite edge has a projection adapted to cooperate with a lug of an elastic locking tab, in which locking lever the holding strip has in the vicinity of each flange a notch of circular arc shape that is inclined so that the end of the notch adjacent to the edge of the holding strip having the projection is lower than the adjoining end of the edge of the holding strip adapted to bear against the abutment.

Thanks to the above feature, the lever has specific locations for the fingers, which facilitates the work of the operative and prevents irritation of the fingers.

The invention is described in more detail next with reference to one particular embodiment shown by way of example only in the appended drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a connector incorporating a locking lever according to the invention.

Figure 2 is a perspective view of the locking lever.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The connector shown in the figures comprises a base 1 with female members 2 adapted to receive male

members 3.

Each female member 2 has pins (not shown) on its bottom adapted to cooperate with female electrical contact members accommodated in passages in the male member 3.

Each female member 2 has a stud 5 with a head 6 on each of two opposite walls 2a.

The male member 3 has one end 8 adapted to be inserted into the corresponding female member and journals 11 on which a locking lever 10 pivots on each of two opposite walls 3a.

In the figures, the lever 10 is articulated to the male member, but it could be mounted on the female member, of course, and the male member carry the studs 5.

The locking lever 10 is U-shaped with a holding strip 12 and two flanges 13. Each flange 13 has in the vicinity of its free end a cam 15 with an opening 16 at one end.

In the vicinity of the strip 12, each flange 13 has a boss 18 on its inside face carried by a thin strip 19, slots 20 on respective opposite sides of each strip increasing its elasticity.

Cavities 17 on the male member 3 receive the bosses 18 when the locking lever 10 is in the rest position.

Upstanding from the male member 3 is an abutment 22 against which bears an edge 23 of the holding strip 12, in the locking position; a latch for immobilizing the lever in this position comprises a projection 26 on the edge 24 of the holding strip 12 adapted to cooperate with a lug 27 on an elastic locking tab 28.

When the lever 10 is pivoted toward the rest position, in which the bosses 18 cooperate with the cavity 17, the male housing member 3 may easily be inserted, after which pivoting the lever 10 toward the locking position engages said male member in the female

member 2.

The elastic locking tab 28 is formed by a cut-out in the lateral wall in the body of the male member 3.

5 The holding strip 12 has in the vicinity of the flanges 13 two lateral notches 30 of circular arc shape which rise from the edge with the projection 26 to the opposite edge.

10 Thanks to this feature, the hand being placed at the end of the edge of the holding strip 12 adapted to cooperate with the abutment 22, two fingers can be placed in the notches 30 and the lever can therefore be closed more easily, and thus a large number of levers 10 can be closed without fatigue and without risk of injury to the fingers.

15 Of course, the invention is not limited to the embodiment that has just been described and shown. Many modifications of detail may be made thereto without this departing from the scope of the invention.